



Department of Environment and Conservation
Division of Water Pollution Control

NPDES Permit Number TNS068047

Authorization to Discharge under the National Pollutant Discharge Elimination System

In compliance with The Tennessee Water Quality Control Act of 1977, T.C.A. § 69-3-101 et seq., as amended, and in compliance with the provisions of the Clean Water Act, 33 U.S.C. et seq., as amended by the Water Quality Act of 1987, P.L. 100-4,

Metro Nashville/Davidson County
Municipal Separate Storm Sewer System (MS4) Permittee:
Metropolitan Government of Nashville and Davidson County
Metro Department of Public Works
Engineering Division
720 South Fifth Street
Nashville, Tennessee 37206

is authorized to discharge storm water runoff, in accordance with the following storm water quality management program(s), effluent limitations, monitoring requirements and other provisions as set forth in Parts II, III, IV, V, VI, VII and VIII below, from all portions of the MS4, owned or operated by the permittee listed above, to waters of the State of Tennessee.

This permit shall become effective on July 1, 1996

This permit shall expire at midnight on June 30, 2001

April 4, 1996
Date Issued

Paul E. Davis, Director
Division of Water Pollution Control

Metro Nashville/Davidson County MS4
NPDES Permit TNS068047

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PART I.

DISCHARGES AUTHORIZED UNDER THIS PERMIT

- A. Permit area: This permit covers the area of Davidson County, Tennessee.
- B. Authorized discharges: Except for discharges prohibited under subpart I.E., this permit authorizes all existing or new storm water point source discharges to waters of the State of Tennessee from those portions of the Municipal Separate Storm Sewer System (MS4) owned or operated by the following permittee.
- C. Permittee: The following entity is subject to the conditions of this permit:
- Metropolitan Government of Nashville and Davidson County
- (Not included are the seven incorporated cities located in Davidson County nor the Tennessee Department of Transportation.)
- Metropolitan Government of Nashville and Davidson County may be referred to in this permit also by "Metro," "Metro Nashville," or the like.
- D. Responsibilities of the permittee
1. The permittee is solely responsible to initiate, develop, and manage at its discretion, the programs enumerated in this permit.
 2. The permittee is responsible for the following:
 - a. compliance with permit conditions relating to discharges from portions of the MS4 where it is the operator;
 - b. implementing the storm water management program on portions of the MS4 where it is the operator;
 - c. where permit conditions are established for specific portions of the MS4, the permittee need only comply with the permit conditions relating to those portions of the MS4 for which it is the operator; and
 - d. a plan of action to assume responsibility for implementing storm water management and monitoring programs on its portion of the MS4 should inter-jurisdictional agreements allocating responsibility among other institutions be dissolved or in default.
 3. The permittee is responsible for the following:
 - a. submission of annual reporting requirements as specified in Part VI. (Annual Report) of this permit;
 - b. collection of monitoring data as required by Part V. (Monitoring Requirements), according to such agreements as may be established between other institutions or permittees; and

- c. insuring implementation of system-wide management program elements, including any system-wide public education efforts.
- E. **Limitations on coverage:** The following discharges are not authorized by this permit.
 - 1. Discharges of non-storm water, except where such discharges are as follows:
 - a. in compliance with a separate NPDES permit; or
 - b. identified by and in compliance with section II.C.7.b.ii. on page 10 of this permit; and
 - 2. Discharges of material resulting from a spill, except emergency discharges required to prevent imminent threat to human health or to prevent severe property damage, provided reasonable and prudent measures have been taken to minimize the impact of the discharge.

PART II.

PERMIT CONDITIONS

- A. **Authorization:** Metro is authorized to discharge storm water from the MS4 according to the management program described in the November 18, 1991 Part 1 and November 16, 1992 Part 2 NPDES MS4 permit application. Where this permit specifies modified, different, or other storm water management program activities, the permittee is responsible for compliance with this permit.
- B. **Completion of application Parts 1 and 2**
Reserved.
- C. **Storm Water Management Program (SWMP) Elements**
 - 1. Operation and maintenance of structural controls
 - a. The permittee shall conduct an inventory of the storm water drainage system and shall include:
 - i. location of inlets, outfalls, manholes, junction boxes, culverts, bridges and concrete channels;
 - ii. physical descriptions of the drainage structures including the material of construction and geometry; and
 - iii. observations of the structural integrity, obstruction to flow, and the presence of oil, grease or abnormal color or odor.

This inventory shall encompass areas of Davidson County owned or operated by the Metropolitan Government of Nashville and Davidson County and shall be done watershed by watershed. The permittee shall arrange the watersheds in order of priority, with those where waters are not meeting their classified uses given the higher priority.

The inventory data shall be compiled in Geographic Information System (GIS) format.

- b. The permittee shall develop and implement inspection and maintenance procedures for storm water infrastructure as described below:
 - i. continue existing maintenance of storm water infrastructure;
 - ii. develop and implement an inspection program for public and private infrastructure;
 - iii. review current maintenance procedures and determine changes that will effect benefit to water quality.
 - iv. specify maintenance criteria for each publicly-owned storm water control structure and maintain, including preventive maintenance, publicly-owned infrastructure;
 - v. establish written instructions for inspection and maintenance responsibilities for privately-owned storm water control structures;
 - vi. establish maintenance requirements, including preventive maintenance, for privately-owned infrastructure;
 - vii. establish enforcement protocol for maintenance of privately-owned infrastructure; and
 - viii. train inspection and maintenance staff and provide cross training to key staff of other Metro departments.
 - c. The permittee shall continue the housekeeping programs of solid waste disposal, control of litter, and leaf collection, as described in the Part 2 application on pages 8 and 9 of Section 4a.
 - d. The permittee shall specify maintenance criteria for the Dry Creek detention facility and inspect the facility once per quarter.
2. Control of discharges from areas of new development and significant redevelopment
- a. The permittee shall identify how storm water quality issues will be considered and incorporated into the municipality's land use planning process.
 - b. The permittee shall require, in areas of new development and significant redevelopment, installation of urban storm water best management practices (BMP's). In particular the permittee shall:
 - i. establish design criteria for wet and extended dry detention ponds and define the conditions when such ponds shall be installed;
 - ii. collect influent and effluent data on at least three of the newly installed ponds;
 - iii. report yearly on the performance of these ponds; and
 - iv. define "significant redevelopment" and establish criteria for installing water quality control systems in redevelopment.

- c. The permittee shall define its master planning effort by investigating the following matters and setting forth a strategy to address each matter:
 - i. changes to laws, ordinances, rules, etc.
 - ii. educating and involving the city council and planning and zoning boards;
 - iii. design criteria for new development, including restrictions on impervious area; use of pervious paving material; source treatment, flow attenuation and infiltration devices; locating local and regional detention basins; provisions for recharge of groundwater; and restrictions for development in steeply sloped areas;
 - iv. changes to administrative procedures; and
 - v. education of land developers.
- d. The permittee shall identify and prioritize all areas where significant levels of development are expected to occur and schedule master planning for these areas.
- e. The permittee shall develop a pilot master plan for the area with highest priority, identified per subitem 2.d. above.
- f. The permittee shall proceed with master planning in other areas, in order of priority.

3. Roadways

- a. The permittee shall continue programs of catch basin cleaning, downtown street sweeping, existing best management practices for the use of deicing chemicals, controls at salt storage areas, and best management practices in the use of herbicides; all of which are described in the application Part 2.
- b. The permittee shall increase street sweeping so that the entire urban services district is swept once every two weeks.
- c. The permittee shall implement routine and preventive maintenance of catch basins.
- d. The permittee shall investigate the following deicing practices and change practices to the maximum extent practicable to minimize the discharge of pollutants to surface waters:
 - use of alternative de-icing agents;
 - use of different ratios of salt in the de-icing application;
 - calibration of equipment or acquisition of self-calibrating equipment;
 - determination of areas most sensitive to de-icing and managing applications in those areas more closely; and
 - runoff controls at two salt storage areas without controls as of November, 1992.

- e. The permittee shall review its spill response program, as enumerated in subitem 7.e. below.
 - f. The permittee shall review its road design criteria and construction requirements, particularly for sensitive areas such as areas adjacent to streams, wetlands and floodplains.
 - g. The permittee shall enumerate conclusions of subitems 3.d., e., and f., above and schedule and implement changes to the maximum extent practicable.
 - h. The permittee shall enumerate street maintenance responsibilities among Metro Nashville, TDOT, and satellite cities.
 - i. Metro Nashville shall review the use of pervious paving material for projects of the Metro Department of Public Works.
4. Flood control projects
- a. The permittee shall evaluate the ten dry pond detention facilities (identified in Table 3-5 of the Part 1 application, excepting the Dry Creek detention basin) to determine the feasibility and benefit of retrofitting these ponds to create wet ponds and to control floatables.
 - b. The permittee shall determine whether structural water quality controls are needed in new flood control projects. The permittee shall use, at a minimum, results from influent and effluent monitoring at voluntarily installed controls.
 - c. Metro Nashville shall develop regulations and design criteria to be included in its Stormwater Management Manual (SWMM) for on-site and regional water quality controls.
5. Program to monitor pollutants in runoff from landfills and from sites used for the treatment, storage and/or disposal of municipal waste
- See subitem II.C.8.f. below.
6. Use of pesticides, herbicides and fertilizers
- a. The permittee shall ensure that the public is made aware of the proper use, handling, storage and disposal of pesticides, herbicides and fertilizers, through efforts such as the following:
 - identifying and acquiring information for distribution to the public; and
 - mass mailings, public meetings, handouts, radio, television, hotline.
 - b. The permittee shall provide, for public use, household hazardous waste turn-in and/or disposal sites.
7. Illicit discharges and improper disposal
- a. General requirement

The permittee shall implement an ongoing program to detect and remove (or require the discharger to the MS4 to remove) illicit discharges and improper disposal into the storm sewer system. Elements of such a program are described in Subitems b. through h. below.

b. Inspections, ordinances, and enforcement measures

i. Non-storm water discharges to the MS4 shall be effectively prohibited by the permittee through various methods, that include at a minimum the use of inspections, ordinances, and enforcement.

ii. The permittee, however, may allow the following non-storm water discharges to the MS4 where the permittee has not identified them as a source of pollutants to waters of the State of Tennessee:

water line flushing;
 landscape irrigation;
 diverted stream flows;
 rising ground waters;
 uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)) to separate storm sewers;
 uncontaminated pumped ground water;
 discharges from potable water sources;
 foundation drains;
 air conditioning condensate;
 irrigation water;
 springs;
 water from crawl space pumps;
 footing drains;
 lawn watering;
 individual residential car washing;
 flows from riparian habitats and wetlands;
 dechlorinated swimming pool discharges;
 street wash waters; and
 discharges or flows from emergency fire fighting activities.

The permittee shall identify those non-storm waters listed above which will be allowed to discharge into the MS4. The permittee shall describe any conditions to be placed on these allowable discharges.

iii. The permittee shall put ordinances in place, or revise existing ordinances, to prohibit clearly illicit connections and illegal dumping into the MS4, and the ordinance shall incorporate the capability to enforce the prohibition and to assess penalties for noncompliance with the ordinance.

iv. The permittee shall develop and put in practice enforcement procedures for the illicit discharges and improper disposal program.

v. Permittee shall provide in the first Annual Report, a photocopy of the signed adopted ordinance(s) described in section iii. above and the enforcement procedures described in section iv. above.

c. Field screening program

- i. The permittee shall develop and implement an ongoing program to determine whether non-storm water entries are present in the storm drainage system, and to identify locations and sources of non-storm waters.

(This program may be considered a continuation of field screening activities done for Part 1 of the NPDES application.)

- ii. The permittee shall set up, train and maintain a two-person field team dedicated to field screening activities and shall purchase, if necessary, and maintain the equipment necessary to the effort.
- iii. The ongoing field screening effort shall be conducted according to priorities.

The priorities given in the Part 2 application shall be followed: i. contaminated Part 1 field screen sites; ii. Part 1 known outfalls that were not screened in the Part 1 screening effort; iii. newly documented outfalls; and iv. low priority Part 1 field screen sites.

- iv. Field screening activities, including locations, times, parameters and sampling results, discovered sources of flows, etc. shall be documented in an electronic database format. The data must be documented so that they can be tracked, organized and otherwise analyzed by computer.
- v. Listed below in Table II.C.1. is a set of minimum dry weather field screening activities.

The minimum level of surveillance for the field screening program shall be based upon a 0.50-mile grid system, with each grid area containing at least one field screening location. In industrial and heavy commercial areas, the minimum level of surveillance shall be based upon a 0.25-mile grid system, with each grid area containing at least one field screening location. Under this program, all grid areas of the MS4 must be screened once during the permit term. Some grid areas may require more than one field screening location or a more frequent inspection schedule, as noted in the table below. In lieu of the grid system, the permittee may choose to field screen at all outfalls.

Table II.C.1.	
GRID MAP COVERING AREA SERVED BY MS4 or ALL OUTFALLS	FREQUENCY OF FIELD SCREENING
	0.25-mile grid or

Industrial Land Use	all outfalls Once / 2 years
Heavy Commercial Land Use	0.25-mile grid or all outfalls Once / 2 years
All Other Land Uses	0.50-mile grid or all outfalls Once / 2 years
Entire MS4 System	One third of the outfalls or one third of the grid areas screened during permit years three, four, & five with the entire MS4 screened once / 5 years

- d. Investigations of non-storm water discharges
- i. The permittee shall develop and implement standard procedures to be followed to investigate portions of the MS4 that, based on the results of the field screen or other appropriate information, indicate a reasonable potential of containing illicit discharges or other sources of non-storm water.
 - ii. Notification to the Division of Water Pollution Control of any illicit connection shall be an element of the standard procedures.
 - iii. The permittee shall set up, train and maintain a two-person field team dedicated to investigating illicit discharges and/or improper disposal and shall purchase and maintain the equipment necessary to the effort.
 - iv. The investigations shall be conducted according to priorities.

The priorities given in the Part 2 application shall be followed: i. contaminated Part 1 field screen sites; ii. complaints; and iii. contaminated field screen sites.
 - v. Investigations, and results of those investigations, including locations, times, parameters and sampling results, discovered sources of flows, etc. shall be documented electronically. The data must be documented so that they can be analyzed electronically.
- e. Procedures to prevent, contain and respond to spills
- i. The permittee shall complete development of and implement operating procedures associated with the *Metropolitan Nashville and Davidson County Emergency Management Plan*.

- ii. The spill response program shall be analyzed, in particular for response time in accident prone areas, who responds to various locations, how long it takes to respond, what equipment is typically needed with respect to what is normally on hand, and whether or not additional equipment needs to be acquired and pre-positioned at designated sites within the city.
- iii. Research and describe known spills within Davidson County over the five years prior to issuance date of this permit. Tabulate data electronically.
- iv. Based on the record of spills, and other pertinent information that is available, i. determine if spills represent a general threat to waters of the State; ii. define the situations where spills are a threat to water quality; and iii. define and prioritize the types of industries that show the greatest potential for spills that threaten water quality

f. Public participation

The permittee shall develop and implement a program that teaches the public to report spills, illegal dumping, illicit connections and water quality problems. The program shall teach the public what to look for and how to report incidents.

The permittee shall establish a telephone hotline, and distribute, at least once a year, water quality public education brochures. They shall publish newspaper advertisements and/or articles for public education and make public service announcements as necessary.

g. Proper management and disposal of oil and toxic materials

- i. The permittee shall effectively prohibit the discharge or disposal of used motor vehicle fluids, household hazardous wastes, grass clippings, leaf litter, and animal wastes into the MS4.
- ii. To satisfy the requirements of this item, the permittee shall educate the public on the correct disposal of these wastes, and shall facilitate the correct disposal of these wastes by supporting oil recycling centers and household hazardous waste disposal site(s).

h. Limitation of sanitary sewer seepage

- i. Metro shall adhere to its own design criteria and construction standards in the installation of sanitary sewers. Insofar as this permit is concerned, this applies to areas where a sanitary pipe crosses a storm sewer or open channel storm water conveyance or where sanitary lines are located just upgradient of a storm sewer where leakage from the sanitary sewer would enter the storm sewer.

- ii. Field screening procedures, more fully described in subitems c. and d. above, shall include tests that will indicate sanitary wastes.
- iii. The permittee shall develop and institute protocol for communication between Metro Water and Sewer and Public Works to report the locations of actual and probable leaks from sanitary to storm sewers. The locations of sanitary sewer leaks to storm sewer shall be included in the Annual Report.

8. Monitor and control industrial and high risk runoff

a. General requirement

Metro shall develop and implement a program to monitor and control, to the MEP, pollutants in runoff from the following types of industries and activities:

- i. municipal landfills;
- ii. hazardous waste treatment, storage and disposal facilities;
- iii. industries under SARA Title III section 313; and
- iv. industrial facilities that the municipal permit applicant determines are contributing a substantial loading of pollutants to the municipal separate storm sewer system.

b. Digital database

The permittee shall set up a digital database, compatible with GIS, of industrial facilities in Metropolitan Nashville and Davidson County, which shall include the following types of industries:

- i. those defined in subitem 8.a. above;
- ii. facilities with individual NPDES permits;
- iii. facilities with coverage under a general permit, such as the storm water general permit;
- v. facilities under the pretreatment program; and
- vi. facilities defined as industries by the EPA storm water application rule of November 16, 1990.

The permittee shall establish an administrative mechanism to update this database at least yearly and provide a listing in each Annual Report of any additionally identified industrial facilities which discharge storm water into the MS4.

c. Inspections

The permittee shall develop and implement a program, as described in Section 4c of the Part 2 application, to

inspect the industrial facilities identified in subitem 8.a. above.

- i. Cycles of systematic inspections shall be performed: all facilities once by the end of the third year of the permit, and each facility once per three years thereafter.
- ii. The permittee shall establish and follow a set of priorities for both the systematic inspections and for inspections in response to illicit discharges, improper disposal, water quality monitoring or complaints. The priorities shall also assure that those facilities where problem-based inspections uncovered a site management problem are revisited in a timely manner to verify that corrective actions have been taken.
- iii. The inspection procedures must recognize and coordinate with existing programs, namely SARA Title III inspections performed by the Metro Fire Department, pretreatment inspections performed by the Metro Department of Water Services, and NPDES inspections performed by Tennessee Department of Environment and Conservation.

The permittee shall identify and document modifications, or recommended modifications, that should be made to the existing inspection programs, and provide the Division with copies of this material.

- iv. The permittee shall develop procedures for inspections. This includes a manual for inspectors and an inspection checklist. Inspectors shall be trained initially and at least once per year thereafter, as described in the Part 2 application on page 7 of Section 4a.

d. Industrial runoff management

The permittee shall provide assistance to its industries in preventing contamination of storm water runoff, by way of guidance materials, workshops with TDEC and the Chamber of Commerce, and technical assistance both on site and in review of storm water pollution prevention plans.

e. Project on the restaurant industry

As part fulfillment of the requirements to control pollutants in runoff and to assist industries, Metro Nashville/Davidson County shall carry out a project on the restaurant industry, researching and describing the industry, its wastes, its waste disposal practices and storm water control practices, and actions that Metro can implement to remedy problems.

f. Landfills and waste disposal facilities

Metro Nashville/Davidson County shall actively investigate closed and open municipal landfills and other treatment, storage or disposal facilities for municipal waste, such as

transfer stations, maintenance and storage yards for waste transportation fleets, POTWs and sludge application sites; based on the evaluations, set up priorities and procedures for implementing control measures for reducing pollution in storm water discharges at these sites.

g. Industrial monitoring program

The permittee shall develop and implement a monitoring [or self monitoring] program for facilities identified in subitem 8.a. above. The monitoring program shall include the collection of quantitative data on the following constituents:

- any pollutants limited in an existing NPDES permit for an identified facility;
- any pollutants limited in effluent limitations guidelines subcategories;
- oil and grease;
- chemical oxygen demand (COD);
- pH;
- biochemical oxygen demand, five-day (BOD₅);
- total suspended solids (TSS);
- total phosphorous;
- total Kjeldahl nitrogen (TKN);
- nitrate plus nitrite nitrogen; and
- any information on discharges required under 40 CFR 122.21(g)(7)(iii) and (iv).

The permittee must include the following in its program:

- written sampling procedures on the chemical analyses to perform, sampling methods, priorities for sites to sample and a sampling schedule;
- trained sampling personnel;
- two automatic samplers; and
- database of results.

Prior to making a final sampling plan, the permittee shall become familiar with the following articles in the book Stormwater NPDES Related Monitoring Needs, Ed. Torno, 1994:

"Overview of Stormwater Monitoring Needs," Cave and Roesner;
 "NPDES Monitoring - Atlanta, Georgia Region," Thomas and McClelland; and
 "NPDES Monitoring - Dallas-Fort Worth, Texas Area," Brush et al.

The permittee shall submit a proposed sampling plan to the Division for review.

Sampling shall be done at four sites per year at least.

9. Construction site runoff

a. General requirement

The permittee shall develop and implement a program to reduce to the MEP the discharge of pollutants from construction sites into the MS4 and waters of the State.

b. Site planning for impacts to waters of the State

The permittee shall develop and implement a procedure for site planning whereby developers and the municipality must consider impacts on water quality of nearby streams due to construction and post construction activities on construction sites.

c. Upgrade of existing Metropolitan Nashville Stormwater Management Manual (SWMM) and process of plans approval

i. Metro shall review its own SWMM and upgrade its requirements, as needed, to meet or exceed erosion and sediment control standards in the Tennessee Erosion and Sediment Control Handbook (July, 1992) and update the list of recommended erosion controls in the SWMM. Furthermore, Metro shall improve the present site planning process by hiring and training a plans review supervisor and by instituting a yearly training workshop for reviewers.

ii. The permittee shall not issue grading permits to sites involving five or more acres of disturbed area unless the applicant for grading permit provides the permittee with proof of coverage under the State of Tennessee's permit for storm water runoff from construction sites, Rule 1200-4-10-.05.

d. Inspection and enforcement

Metro shall improve its construction site inspection and enforcement procedures by carrying out the following:

- i. to hire and train three additional construction inspectors;
- ii. to update inspector's checklist to meet the state's general permit;
- iii. to establish electronic database of construction sites to enable tracking of inspections, complaints, violations and follow-up;
- iv. to purchase four vehicles and associated equipment for inspectors;
- v. to conduct annual training workshop for construction inspectors;

- vi. to modify existing ordinances to set up greater penalties; and
- vii. to gain greater priority in the environmental court for violations at construction sites.

e. Education on erosion and sediment control

Metro shall evaluate the need to sponsor or cosponsor a workshop or an annual workshop on erosion and sediment control.

10. Habitat improvement

Metro Nashville shall investigate and report on the feasibility of a program of improving habitats in Davidson County streams.

D. Area-specific storm water management program requirements

Reserved.

E. Deadlines for compliance

The deadlines for compliance with the elements of the Storm Water Management Program are given in Part III below. The due dates given in Part III are to be calculated from the effective date of the permit.

F. Interagency agreements

The storm water management program, together with any attached interagency agreements or interagency agreements developed subsequent to the effective date of the permit, shall clearly identify the roles and responsibilities of the permittee and the other agency. Following the effective date of the permit, interagency agreements developed and implemented must be included in the Annual Report that covers the permit year in which the agreement became effective.

G. Legal authority

To the extent allowed by law, the permittee shall ensure legal authority to control discharges to and from those portions of the MS4 over which it has jurisdiction. This legal authority may be a combination of statute, ordinance, permit, contract, order or, in the case of other public agencies, inter-jurisdictional agreements between the permittee and the other agency, with adequate existing legal authority to accomplish items i.-vi. below:

- i. to control the contribution of pollutants to the MS4 by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity;
- ii. to prohibit illicit discharges to the MS4;
- iii. to control the discharge of spills and the dumping or disposal of materials other than storm water (e.g. industrial and commercial wastes, trash, used motor vehicle fluids, leaf litter, grass clippings, animal wastes, etc.) into the MS4;
- iv. to control through interagency or inter-jurisdictional agreements between the permittee and other public agency the

contribution of pollutants from one portion of the MS4 to another;

- v. to require compliance with conditions in ordinances, permits, contracts or orders; and
- vi. to carry out all inspection, surveillance and monitoring procedures necessary to determine compliance with permit conditions.

H. Storm water management program resources

The permittee shall provide adequate finances to implement its activities under the Storm Water Management Program. The permittee shall also have a source of funding for implementing all other requirements included within this NPDES storm water permit.

I. Storm water management program review and modification

1. Program Review: The permittee shall participate in an annual review of the current Storm Water Management Program (SWMP) in conjunction with preparation of the Annual Report required under subparts V. A., B., and C. of the permit.
2. Program Modification: The permittee may modify the SWMP during the life of the permit in accordance with the following procedures:
 - a. Modifications that add, but neither subtract nor replace, components, controls, or requirements to the approved SWMP may be made by the permittee at any time. A description of the modification shall be included in the subsequent Annual Report.
 - b. Modifications that replace an ineffective or infeasible best management practice (BMP), which is specifically identified in the SWMP along with an alternate BMP, may be made by the permittee at any time. A description of the replacement BMP shall be included in the subsequent Annual Report along with the following information:
 - (1) an analysis of why the former BMP was ineffective or infeasible (including cost-prohibitive);
 - (2) expectations on the effectiveness of the replacement BMP; and
 - (3) an analysis of why the replacement BMP is expected to achieve the goals of the BMP which was replaced.
 - c. Modifications to adjust the schedule for maintenance activities or the frequency of inspections or monitoring identified in the SWMP may be made by the permittee on an annual basis. The permittee must include in the subsequent Annual Report a description of the adjustment to schedule along with the following information:
 - (1) an analysis of why the former schedule was ineffective or infeasible;

- (2) expectations on the effectiveness of the replacement schedule; and
 - (3) an analysis, if applicable, of why the replacement schedule will ensure the optimization of equipment use.
 - d. Modifications that subtract components, controls, or requirements of the SWMP may not be made by the permittee unless it can be clearly demonstrated that with the elimination of this component, the SWMP will continue to achieve a reduction in pollutants to the MEP and shall not cause or contribute to violations of State water quality standards in the receiving stream. In the case where this type of modification is appropriate, the permittee may make the required modification and shall include in the subsequent Annual Report a description of the component which has been eliminated along with the following information:
 - (1) an analysis of why the component was ineffective or infeasible; and
 - (2) a detailed explanation of why, with the elimination of this component, the SWMP will continue to achieve a reduction in pollutants to the MEP and shall not cause or contribute to violations of State water quality standards in the receiving stream.
 - e. Modifications included in the Annual Report shall be signed in accordance with subpart VII.K.
3. Transfer of Ownership, Operational Authority, or Responsibility for Storm Water Management Program Implementation: The permittee shall implement the SWMP on all new areas added to its portion of the municipal separate storm sewer system (or for which they become responsible for implementation of storm water quality controls) as expeditiously as practicable. Implementation of the program in any new area shall consider the plans in the SWMP of the previous MS4 ownership.

Prior to annexation of land, the permittee shall include a schedule for extending the SWMP to the annexed areas. At least 30 days prior to transfer of operational authority or responsibility for implementing the SWMP, all parties shall prepare a single schedule for transfer of responsibility for implementing the SWMP on the affected portions of the MS4. This schedule shall be included in the Annual Report.

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PART III.

SCHEDULES FOR IMPLEMENTATION AND COMPLIANCE

The permittee shall comply with the following schedules for Storm Water Management Program implementation and augmentation, and for permit compliance. Due dates are to be calculated from the effective date of the permit.

A. Schedule for development and implementation of SWMP elements and programs

The program elements listed below are taken from Part I, subpart C. of this permit.

1. Operation and maintenance of structural storm water controls and of the storm water collection system		
Permittee	Activity	Date Due/ Frequency
Metro	Conduct an inventory of the storm water drainage system.	
	Prioritize watersheds.	12 months
	Begin inventory.	12 months
	Complete inventory.	36 months
Metro	Develop and implement inspection and maintenance procedures for storm water infrastructure.	
	Continue existing maintenance.	Immediately
	Develop inspection and maintenance procedures, including preventive maintenance, for public and private infrastructure as described in subitem I.C.1.b.	36 months
	Implement inspection and maintenance procedures.	36 months
	Train inspection and maintenance staff and provide cross training to key staff of other Metro departments.	24 months
	Review current maintenance procedures and determine changes that will effect benefit to water quality.	12 months
	Additionally, Metro shall report on the progress of the inventory and of inspection and maintenance procedures and schedules yearly.	Annual Report
Metro	Housekeeping programs (solid waste disposal, litter control, leaf collection)	Immediately
Metro	Inspections of Dry Creek detention facility	1/quarter

2. Control of discharges from areas of new development and significant redevelopment		
Permittee	Activity	Date Due/ Frequency
Metro	Ordinance, or other means, to require installation of urban storm water BMP's	
	Establish design criteria for wet and extended dry detention ponds.	24 months
	Establish ordinance or other enforceable procedure	30 months
	Collect influent and effluent data on ponds.	From 42 - 60 months
	Report on performance of ponds.	4th and 5th annual

		reports
Metro	Identify how storm water quality issues will be considered and incorporated into the municipality's land use planning process.	12 months
"	Define master planning effort.	12 months
"	Identify and prioritize (schedule) all areas where significant levels of development are expected to occur.	18 months
"	Develop a pilot master plan for the area with highest priority.	24 months
"	Continue on schedule to do master planning in other areas.	Annual reports/Per schedule

3. Roadways		
Permittee	Activity	Date Due/ Frequency
Metro	Catch basin cleaning, downtown street sweeping, best management practices in the use of deicing chemicals and herbicides, controls at salt storage areas	Immediately
"	Entire urban services district sweeping increases to once per two weeks.	24 months/ Once/2 weeks
"	Investigate and report on deicing practices. Implement changes.	12 months
"	Spill response program. See under Illicit Discharges and Improper Disposal.	--
"	Review road design requirements and upgrade for water quality controls.	12 months
"	Enumerate roadway maintenance responsibilities among Metro, satellite cities, TDOT and other institutions engaged in roadway maintenance.	12 months
"	Routine preventive maintenance on catch basins	36 months

4. Flood control projects		
Permittee	Activity	Date Due/ Frequency
Metro	Evaluate the ten dry pond detention facilities.	24 months
"	Determine need for structural water quality controls at flood control projects.	48 months
"	Regulations and design criteria for SWMM	60 months

5. Discharges from landfills and other waste treatment, storage or disposal facilities		
Permittee	Activity	Date Due/ Frequency
--	See program element 12 below.	--

6. Application of pesticides, herbicides and fertilizer		
Permittee	Activity	Date Due/ Frequency
Metro	Teaching public proper use and disposal of household hazardous waste	Yearly, and as necessary
"	Household hazardous waste turn-in facilities Open facilities	24 months

	Operate facilities	1/quarter
--	--------------------------	-----------

7. Illicit discharges and improper disposal		
Permittee	Activity	Date Due/ Frequency
Metro	Identify allowable discharges of non-storm water and describe conditions.	12 months
"	Inspections, ordinances and enforcement measures Promulgate new or revised ordinances regarding illicit and illegal dumping and enforcement and penalties; provide copy of ordinances to Division. Develop enforcement procedures.	12 months 12 months
"	Field screening Develop program. Initiate field screening.	12 months Beginning of year two
"	Investigations of non-storm water Develop program. Implement program.	12 months Beginning of year two
"	Spills Complete and implement <i>Emergency Management Plan</i> Complete research project.	12 months 24 months
"	Public notification Develop a program that teaches the public to report spills, etc. Include summary of program in subsequent Annual Report. Implement public reporting program.	24 months 24 months In year three
"	Oils, toxics and household hazardous wastes Educate public on proper disposal, including supporting and promoting recycling of used oil. Operate household hazardous waste turn-in site(s) (See program element 6. above.)	24 months 24 months & 1/quarter
"	Limiting sanitary sewer seepage Following design and construction criteria Communication protocol	Immediately 12 months

8. Industrial and high risk runoff		
Permittee	Activity	Date Due/ Frequency
Metro	Digital database. Structure, initial known industrial sites, entry procedures, etc. set up. .. Update in Annual Reports.	6 months Annually
"	Inspection program Program developed; procedures written, submitted to Division Inspector manuals, checklists Recommended modifications to other inspection programs. Inspector training Inspect 8.a. facilities once in first three years of permit. Reinspect 8.a. facilities.	12 months 12 months 18 months 18 months & annually 36 months Once/three yrs.

"	Industrial guidance materials	12 months
"	Restaurant industry project	
	Research	18 months
	Report on actions Metro can take	18 months
"	Landfills and waste disposal facilities	
	Investigation	24 months
	Priorities and procedures	30 months
"	Industrial monitoring	
	Proposed sampling plan (to Division for review)	12 months
	Training of staff	12 months
	Sampling four to eight sites per year	24 months and annually

9. Construction site runoff		
Permittee	Activity	Date Due/ Frequency
Metro	Procedure for site planning	12 months
"	Upgrade SWMM.	24 months
"	Hire and train plans review supervisor.	12 months
"	Train reviewers annually.	Annually
"	Inspection and enforcement	
	Hire three additional construction site inspectors; plus equipment.	12 months
	Update inspectors' checklist.	12 months
	Electronic database	12 months
	Inspector training	Annually
	Ordinances for greater penalties	12 months
	Priority in environmental court	24 months
"	Evaluate need for training in erosion and sediment control. Report in first Annual Report.	12 months

10. Stream habitat improvement report		
Permittee	Activity	Date Due/ Frequency
Metro	Report on feasibility of a program of stream habitat improvement	24 months
-	-	-

(end of table)

Go to next page.

B. Compliance with effluent limitations

NONE

Go to next page.

PART IV.

NUMERIC EFFLUENT LIMITATIONS

NONE

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PART V.

MONITORING REQUIREMENTS

A. Wet weather monitoring (seasonal loadings and event mean concentrations)

1. Locations

The permittee shall conduct wet weather monitoring at five or more separate storm sewer outfalls (or three or more instream locations) during the five year term of the permit. Sites shall be selected in conjunction with the goals of a comprehensive monitoring program. The permittee shall submit a list of sites to the Division for review prior to beginning monitoring.

2. Procedures

a. Parameters to be sampled at a minimum are shown below:

(These constituents were detected in the sampling data reported in the Part 2 application.)

TABLE V. 1.	
PARAMETERS FOR WET WEATHER MONITORING	
biochemical oxygen demand (BOD ₅)	chemical oxygen demand (COD)
total suspended solids (TSS)	fecal coliform
total dissolved solids (TDS)	fecal streptococcus
total ammonia nitrogen (as N)	total recoverable chromium
total ammonia plus organic nitrogen	total recoverable copper
nitrate plus nitrite nitrogen (as N)	total recoverable lead
total nitrogen	total recoverable nickel
total phosphorus	total recoverable zinc
dissolved phosphorus	

b. Sampling methodology shall be according to the EPA storm water application regulations at 40 CFR 122. 26 (November 16, 1990).

3. Estimates of seasonal loadings and event mean concentrations

a. The permittee shall provide estimates of the seasonal pollutant load and of the event mean concentration of representative storms for the parameters listed in Table V.1. for each "major watershed" within the MS4. The

permittee shall document the method used to prepare these estimates.

- b. For the purpose of this permit, a major watershed is defined as follows:

"Major watershed" means an area bounded peripherally by a parting (i.e. ridge) which directs flowing water in different directions and draining to a particular water course or body of water. A major watershed shall encompass a named (current U.S.G.S.) waterbody. A major watershed may contain one or more major outfalls.

- b. The estimates of seasonal loadings and event mean concentrations shall be included in the Annual Report for the fourth and fifth years of the permit.
- c. The seasonal pollutant load and event mean concentration for each major watershed may be estimated from the representative monitoring locations, from regional NURP or State data, or from pooling results from other Tennessee MS4 monitoring activities and shall take into consideration land uses and drainage areas for the outfall. The conclusions of the USGS sampling and pollutant loading report shall be used. Reference United States Geological Survey (USGS) Open-File Report 94-68 titled "Rainfall, Streamflow, and Water-Quality Data for Five Small Watersheds, Nashville, Tennessee, 1990-92" and USGS Water-Resources Investigations Report 95-4140 (in press).
- d. The location of all known major outfalls shall be inventoried in the Annual Report for year three of the permit, with updates describing any additionally identified major outfalls in each subsequent Annual Report.
- e. For the purposes of this permit, a "major outfall" is defined as follows:
- a pipe (or closed conveyance) system with a cross-sectional area equal to or greater than 7.07 square feet (e.g., if a single circular pipe system, an inside diameter of 36 inches or greater);
 - a single conveyance other than a pipe, such as an open channel ditch, which is associated with a drainage area of more than 50 acres;
 - a pipe (or closed conveyance) system, draining industrial land use, with a cross-sectional area equal to or greater than 0.79 square feet (e.g., if a single circular pipe system, an inside diameter of 12 inches or greater); or
 - a single conveyance other than a pipe, such as an open channel ditch, which is associated with an industrial land use drainage area of more than 2 acres.

- f. The flow basis of the seasonal loadings shall be reported along with the estimates. In addition, a value for total runoff from separate storm sewer system outfalls for the entire Davidson county area for the year shall be reported in each Annual Report.
- g. The seasonal sampling program shall be developed and submitted to the Division for review within twelve months of issuance of the permit. Sampling shall proceed in years two through five of the term of the permit.

B. Ambient monitoring

1. Development of program

The permittee shall develop a program, as proposed in the Part 2 application in section 3.4.2., of monitoring the water quality of local streams. The program shall be submitted to the Division for review no later than the first Annual Report. The Division will have 30 days to review the proposed program before the permittee begins sampling.

For the second through fifth years of the permit term, at least five sites shall be monitored yearly. The parameters to be sampled are, at a minimum, those identified in Table V.1. above.

Metro may choose to enhance already existing programs of ambient monitoring as fulfillment of this requirement. However, for each type of ambient monitoring performed (i.e., dry weather, wet weather, chemical, and biological), Metro shall be participant in the field at least once during the first year of monitoring.

2. Biological sampling

Metro shall develop a program of periodic biological assessments of at least two urban streams. The choice of streams must be approved by the Director of the Division of Water Pollution Control. The Division intends that these streams be ones that are not meeting classified uses because of, or likely because of, the impact of urban runoff. Beginning in year three of the permit, the two sites shall be sampled at least twice per year in two different seasons. The protocol for sampling shall be EPA's Rapid Bioassessment protocols or the Tennessee Biological Standard Operating Procedures, March, 1996. The level of protocol for each sampling must be approved by the Director of the Division.

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PART VI.

REPORTING REQUIREMENTS

A. Annual Report

1. Preparation of annual report required
 - a. The permittee shall contribute to the preparation of an annual system-wide report to be submitted by no later than six months following the period covered by the report. The Annual Report shall cover the 12 month period beginning on the effective date of this permit and annually thereafter.
 - b. The permittee shall sign and certify the Annual Report in accordance with subpart VII.K. of this permit, and shall include a statement or resolution that the permittee's governing body or agency (or delegated representative) has reviewed or has been appraised of the content of the Annual Report.
 - c. The Annual Report shall include the following sections:
 - Contacts List
 - SWMP Evaluation
 - Summary Table
 - Narrative Report
 - Monitoring Section
 - Assessment of Controls (estimated reductions in loadings as a result of the SWMP)
 - Summary of SWMP and Monitoring Modifications
 - Proposed changes to the storm water management program
 - Fiscal Analysis
 - Appendices
2. The following items describe in more detail the specific requirements for the Annual Report.
 - a. Provide a list of contacts and responsible parties (e.g.: agency, name, phone number) who had input to and are responsible for the preparation of the Annual Report.
 - b. Provide an overall evaluation of the Storm Water Management Program including: Objective of program; Major findings; Major accomplishments; Overall program strengths/weaknesses; Identification of water quality improvements or degradation; and Future direction of program.
 - c. Provide a Summary Table of Storm Water Management Program Elements.
 - i. A Summary Table of appropriate SWMP annual activities for each permittee shall be provided. The purpose of the Summary Table is to document in a concise form the program activities and permittees' compliance status with quantifiable permit requirements. Program

elements that are administrative (e.g.: planning procedures, program development and pilot studies) are inappropriate for the summary table and shall be discussed in the narrative section of the Annual Report. The following are examples of SWMP activities to be included in the Summary Table:

- (1) Structural Controls - maintenance and/or inspection activities of existing structural controls
- (2) Roadway Maintenance - street sweeping, litter control activities, and maintenance on storm water structures & roadside ditches
- (3) Municipal Waste TSD Facilities - inspections, monitoring, and implementation of control measures
- (4) Pesticide, Herbicide, and Fertilizer Application - certification training and public education
- (5) Illicits - facility inspections, investigations, enforcement actions, illicit (dry weather) screening, illicit public reporting, oil/household hazardous waste collection, and storm sewer inlet stenciling
- (6) High Risk Industrial Facilities - inspection activities and monitoring
- (7) Construction - training of inspectors, inspections, and enforcement actions
- (8) Storm Water Treatment Projects - description of municipal storm water treatment projects that have been completed, including a brief description of the affected drainage basin

ii. The Summary Table shall indicate the permittee's SWMP activities and accomplishments. The format for this information shall adhere to the example shown in Table VI.1. below. Items to be reported include:

- (1) Activity description;
- (2) Number of activities (with frequency) that were scheduled for implementation and/or accomplishment in program element discussion (i.e., once/6 months, 100%/5 years, 6 sites monitored once/year, all sites inspected/permit term). Enter "Not Applicable" (N/A) if no specific schedule was specified;
- (3) Status of schedule for year ("yes" for schedule was adhered to, or "no" for schedule was not adhered to);
- (4) Number of activities which were accomplished;
and

- (5) The availability of documentation (i.e., inspection reports) for those activities which were accomplished and comments describing the reason(s) for any non-compliance.
- d. The Annual Report shall contain a Narrative Report that succinctly discusses the SWMP Elements which were not included within the SWMP Summary Table. Those SWMP elements required to be developed under Parts II. and III. of the permit shall be discussed within this section of the Annual Report following development.
 - i. The permittee shall include a brief discussion, as applicable, of the following SWMP Elements:
 - (1) Structural Controls Maintenance
 - (2) Development Planning Procedures
 - (3) Roadway Maintenance
 - (4) Flood Management
 - (5) Municipal Facilities
 - (6) Pesticides, Herbicides, and Fertilizers
 - (7) Illicits Inspection/Investigation/Enforcement
 - (8) Field Screening
 - (9) Spill Response
 - (10) Public Reporting of Illicit Discharges
 - (11) Oil and Household Hazardous Waste
 - (12) Sanitary Sewer Seepage
 - (13) High Risk Industrial Facility Inspection
 - (14) Construction Planning Procedures
 - (15) Construction Inspections
 - (16) Education Activities
 - (17) Monitoring Activities
 - (18) Any additional elements of Storm Water Management Program
 - ii. The format for the Narrative Report section of the Annual Report shall be a brief discussion of the SWMP element. The aspects of the permittee's activities concerning a SWMP Element shall be succinctly discussed in the section of the Narrative Report dedicated to that element. The discussion shall include the following:
 - (1) Objective of SWMP Element;
 - (2) SWMP Element activities completed and those in progress;
 - (3) General discussion of element. Explanation of all Element activity deficiencies (e.g., activities described in the program that have not been fully implemented or completed). Results of activities shall be summarized and discussed (e.g.: maintenance caused by inspection, pollutants detected by monitoring, investigations as a result of dry and wet weather screening, number and nature of enforcement items, education activities participation);
 - (4) Status of SWMP Element with compliance, implementation, and augmentation schedules in Part III. of the permit;

- (5) SWMP Element strengths and weaknesses;
 - (6) Assessment of controls; and
 - (7) Discussion of revisions to the SWMP Element, which shall be included in the summary in subitem g. below.
- e. The Annual Report shall contain a Monitoring Section which discusses the progress and results of the monitoring programs required under Part V. (Monitoring Requirements) of the permit.
 - i. The Monitoring Section of the Annual Report shall include the following information as required in subpart VI.A. of the permit:
 - (1) Inventory of all known major outfalls in the third Annual Report, with updates describing additionally identified major outfall in each subsequent Annual Report;
 - (2) For the Annual Reports of years four and five of the permit, estimates of seasonal pollutant loadings and event mean concentrations (EMC) for each major watershed required by Item V.A.3. of the permit; the basis for estimates shall be clearly given; and
 - (3) Based on total rainfall for the year, imperviousness of different land uses, etc., an estimate of the total volume of urban runoff discharged in Davidson County for the year.
 - ii. The Monitoring Section of the Annual Report shall include a summary of the monitoring program developed and implemented under subpart V.B. (Ambient monitoring) of the permit. The details to be discussed include:
 - (1) For the first Annual Report, an explanation and rationale for the type of ambient monitoring program Metro will conduct, to be submitted for the Division's review;
 - (2) Summary chart of the data from the monitoring completed;
 - (3) Discussion of any results or conclusions derived from the monitoring completed;
 - (4) For the first year of monitoring (year two of the permit), record of Metro personnel's participation in collection of samples;
 - (5) For the second Annual Report, an explanation and rationale for a program of periodic biological assessments of at least two urban streams; and for years three through five, the Annual Reports shall include as appendices, the results of the assessments; and

(6) Discussion of revisions to the monitoring program, which shall be included in the summary in subitem g. below.

- f. Provide estimated reductions in loadings of pollutants from discharges of pollutants from the MS4 expected as the result of the municipal storm water management program. The assessment shall identify known impacts of storm water controls on ground water quality. 40 CFR 122.26(d)(2)(v).
- g. Provide a summary of any modifications, replacements, or changes to the SWMP made during the report year; of any adjustments to schedules; and of modifications to the monitoring program made during the report year.
- h. List and discuss any changes that the permittee is expected to make to the storm water management programs, for the year following the report year.
- i. Provide a complete fiscal analysis for the permittee's program implementation, both for the past calendar year and the next. The analysis shall indicate budgets and funding sources.
- j. The following information shall be included as Appendices within the Annual Report for the fifth year of the permit:
 - i. Analytical data collected from the monitoring program;
 - ii. Results of illicit connections screening or dry weather screening; and
 - iii. Any other data specifically requested by the Division to substantiate statements and conclusions reached in the Annual Reports.

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Table VI.1. - EXAMPLE Summary Table for Storm Water Management Program Element Status/Compliance (EXAMPLE ONLY)

PROGRAM ELEMENT	PERMITTEE	REQUIREMENT	ACTIVITY SCHEDULE			COMMENTS
			Activities Required by SWMP	Complied with	Activities Accomplished during calendar year	
Structural Controls	Permittee 1	Major Channels Inspected	15 Channels, once/6 mos.	YES	15 Channels, once/6 mos	Copies of Inspection Report Forms - Available Upon Request
		Major Channels Maintained	As needed	N/A	7 Channels maintained	
		Grate Inlets Inspected	1500 Inlets, once/year	NO	1000 Inlets	Ambitious projection. Reducing to 1000 next year due to resources.
		Detention Ponds Maintained	1 Pond, once/month	YES	1 Pond once/month	Sediment removed after spring rains.
Monitoring	Permittee 1	Municipal - Landfills POTW	2 Facilities, once/6 mos.	YES	2 Facilities once/6 mos.	Copies of Monitoring Data - Available Upon Request
			3 Facilities, once/year	NO	2 Facilities	Copies of Monitoring Data - Available Upon Request
		Industrial - Hazardous Title III Others	5 Facilities, once/6 mos.	YES	5 Facilities, once/6 mos.	Copies of Monitoring Data - Available Upon Request
			3 Facilities, once/6 mos.	YES	3 Facilities, once/6 mos.	Copies of Monitoring Data - Available Upon Request
			2 Facilities, once/year	YES	2 Facilities	Copies of Monitoring Data - Available Upon Request
		Dry Weather Screening	100% system, once/5 yrs.	YES	20% system	Copies of Screening Field Reports - Appendix B.
		Floatable Assessment	100 sections surveyed/yr.	YES	140 sections surveyed	Copies of Field Survey - Available Upon Request

B. Certification and Signature of Reports

All reports required by the permit and other information requested by the Director shall be signed and certified in accordance with subpart VII.K. of the permit.

C. Reporting: Where and When to Submit.

1. As required by subpart V.A., monitoring results obtained during the reporting period running from the 12 month term beginning on the effective date of this permit and annually thereafter shall be submitted on Discharge Monitoring Report Form(s) in the Annual Report for year five of the permit. A separate Discharge Monitoring Report Form is required for each event monitored.
2. Signed copies of the Annual Report required by subpart V.A. and all other reports required herein, shall be submitted to:

Division of Water Pollution Control
Attention: Compliance Review
L & C Annex, 6th Floor
401 Church Street
Nashville, Tennessee 37243-1534

D. Retention of Records

The permittee shall retain the latest version of the Storm Water Management Program developed in accordance with Part II of this permit for at least three years after the expiration date of this permit. The permittee shall retain all records of all monitoring information, copies of all reports required by this permit, and records of all other data required by or used to demonstrate compliance with this permit, until at least three years after the expiration date of this permit. This period may be explicitly modified by alternative provisions of this permit or extended by request of the Director at any time.

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PART VII.

STANDARD PERMIT CONDITIONS

A. Duty to comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of applicable State and Federal laws and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

B. Duty to reapply

The permittee is not authorized to discharge after the expiration date of this permit. If the permittee wishes to continue discharges after the expiration date, the permittee must submit a complete application, with necessary information and forms, for reissuance of the permit, at least 180 days prior to the expiration date.

C. Need to halt or reduce activity not a defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. Duty to mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

E. Proper operation and maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

F. Permit actions

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

G. Property rights

This permit does not convey any property rights of any sort in either real or personal property, or any exclusive privileges, nor

does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations.

H. Duty to provide information

The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Director upon request, copies of records required to be kept by this permit.

I. Inspection and entry

The permittee shall allow the Director, or an authorized representative of the EPA, including a contractor acting as a representative of the EPA Administrator, upon presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
4. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by State law or the Clean Water Act, any substances or parameters at any location.

J. Monitoring and records

1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
2. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time.
3. Records of monitoring information shall include:
 - a. The date, place, and time of sampling or measurements;
 - b. The individual(s) who performed the sampling or measurements;
 - c. The date(s) analyses were performed;

- d. The individual(s) who performed the analyses;
 - e. The analytical techniques or methods used; and
 - f. The results of such analyses.
- 4. Monitoring results must be conducted according to test procedures approved under 40 CFR part 136, unless other test procedures have been specified in the permit.
 - 5. The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by fines and imprisonment described in Section 309 of the Clean Water Act.

K. Signatory requirement

- 1. All applications, reports, or information submitted to the Director shall be signed and certified.
 - a. Applications

All permit applications shall be signed (for a municipality, State, Federal, or other public agency) by either a principal executive officer or ranking elected official.
 - b. Reports and other information

All reports required by this permit, and other information requested by the Director shall be signed by a person described in subitem a. of this section, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

 - i. The authorization is made in writing by a person described in subitem a. of this section;
 - ii. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of director or assistant director, manager or superintendent, or position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and
 - iii. The written authorization is submitted to the Director.
 - c. If an authorization under subitem b. above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of subitem b. of this section must be submitted to the Director prior to or together with any

reports, information, or applications to be signed by an authorized representative.

d. Certification

Any person signing a document under subitem a. or b. of this section shall make the following certification: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

2. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

L. Reporting requirements

1. Planned changes

The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

- a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in § 122.29(b); or
- b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under § 122.42(a)(1); and
- c. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

Note: By planned physical alterations or additions to the permitted facility, the Division means alterations or

additions to the storm sewer system, such as the installation of storm water treatment devices (wet or dry detention ponds, etc.), or annexing land with associated storm sewer systems. Physical changes do not include all land disturbing activities within Metro or all land disturbing activities covered by Metro grading permits.

2. Anticipated noncompliance

The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

3. Transfers

This permit is not transferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the State law and the Federal Clean Water Act.

4. Monitoring reports

Monitoring results shall be reported at the intervals specified elsewhere in this permit.

- a. Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Director.
- b. If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR part 136, or as specified in the permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR.
- c. Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the permit.

6. Twenty-four hour reporting

- a. The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.
- b. The following shall be included as information which must be reported within 24 hours under this paragraph.

- i. Any unanticipated bypass which exceeds any effluent limitation in the permit. (See § 122.41(g).)
 - ii. Any upset which exceeds any effluent limitation in the permit.
 - iii. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in the permit to be reported within 24 hours. (See § 122.44(g).)
- c. The Director may waive the written report on a case-by-case basis for reports under paragraph (1)(6)(ii) of this section if the oral report has been received within 24 hours.

7. Other noncompliance

The permittee shall report all instances of noncompliance not reported under paragraphs (1) (4), (5), and (6) of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph (1)(6) of this section.

8. Other information

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, it shall promptly submit such facts or information.

M. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

N. Liabilities

1. Civil and Criminal Liability

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance. Notwithstanding this permit, the permittee shall remain liable for any damages sustained by the State of Tennessee, including but not limited to fish kills and losses of aquatic life and/or wildlife, as a result of the discharge of wastewater to any surface or subsurface waters. Additionally, notwithstanding this permit, it shall be the responsibility of the permittee to conduct its wastewater treatment and/or discharge activities in a manner such that public or private nuisances or health hazards will not be created.

2. Liability Under State Law

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or the Federal Water Pollution Control Act, as amended.

PART VIII.

PERMIT MODIFICATION

A. Modification of the permit

The permit may be reopened and modified during the life of the permit to:

1. Address impacts on receiving water quality caused, or contributed to, by discharges from the MS4;
2. Address changes in State or Federal statutory or regulatory requirements;
3. Include the addition of a new permittee who is the owner or operator of a portion of the Municipal Separate Storm Sewer System; or
4. Include other modifications deemed necessary by the Director to comply with the goals and requirements of the Clean Water Act.

All modifications to the permit will be made in accordance with 40 CFR 122.62, 122.63, and 124.5 and applicable State regulations.

B. Termination of coverage for a single permittee

Not applicable

C. Modification of Storm Water Management Program(s)

Only those portions of the Storm Water Management Programs specifically required as permit conditions shall be subject to the modification requirements of 40 CFR 124.5. Replacement of an ineffective or infeasible BMP implementing a required component of the Storm Water Management Program with an alternate BMP expected to achieve the goals of the ineffective or infeasible BMP shall be considered minor modifications to the Storm Water Management Program and not modifications to the permit. (See also subpart II.G.)

D. Changes in monitored outfalls

This permit is issued on a system-wide basis in accordance with CWA §402(p)(3)(B)(i) and authorizes discharges from all portions of the municipal separate storm sewer system. Since all outfalls are authorized, changes in monitoring outfalls, other than those with specific numeric effluent limitations, if any, shall be considered minor modifications to the monitoring program and not modifications to the permit. (See also items V.B.1. and V.C.6.) Changes in monitoring outfalls with specific numeric effluent limitations shall be considered modifications to the permit and will be made in accordance with the procedures at 40 CFR 122.62.

PART IX.

DEFINITIONS

Definitions contained in the Tennessee Water Quality Control Act and Federal NPDES rules apply where one is not specified below. Unless otherwise specified in this permit, additional definitions of words or phrases used in this permit are as follows:

- A. "Best Management Practices," or "BMP's" means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control facility site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.
- B. "CWA" means Clean Water Act, also referred to as "the Act" (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub.L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. 6-483 and Pub. L. 97-117, 33 U.S.C. 1251 et.seq., as amended by the WQA of 1987, P.L. 100-4, the "Act."
- C. "Director" means the Director of the Tennessee Division of Water Pollution Control, or an authorized representative of that position.
- D. "Discharge" for the purpose of this permit, unless indicated otherwise, refers to discharges from the Municipal Separate Storm Sewer System (MS4).
- E. "Flow-weighted composite sample" means a composite sample consisting of a mixture of aliquots collected at a constant time interval, where the volume of each aliquot is proportional to the flow rate of the discharge at the time of sampling.
- F. "Illicit connection" means any man-made conveyance connecting a non-storm water discharge directly to a municipal separate storm sewer system.
- G. "Illicit discharge" means any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and other discharges listed in subitem II.A.7.a. of this permit.
- H. "Industrial Land Use" means land utilized in connection with manufacturing, processing, or raw materials storage at facilities identified under 40 CFR 122.26(b)(14).
- I. "Landfill" means an area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application unit, surface impoundment, injection well, or waste pile.
- J. "Large Municipal Separate Storm Sewer System" means all municipal separate storm sewers that are either:
 - (i) located in an incorporated place (city) with a population of 250,000 or more as determined by the latest Decennial Census

- by the Bureau of Census (these cities are listed in Appendices F and G of 40 CFR Part 122); or
 - (ii) located in the counties with unincorporated urbanized populations of 250,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships or towns within such counties (these counties are listed in Appendices H and I of 40 CFR Part 122); or
 - (iii) owned or operated by a municipality other than those described in paragraph (i) or (ii) and that are designated by the Director as part of the large municipal separate storm sewer system.
- K. "Major watershed" means an area bounded peripherally by a parting (i.e. ridge) which directs flowing water in different directions and draining to a particular water course or body of water. A major watershed shall encompass a named (current U.S.G.S.) waterbody. A major watershed may contain one or more major outfalls.
- L. "Medium Municipal Separate Storm Sewer System" means all municipal separate storm sewers that are either:
- (i) located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (these cities are listed in Appendices F and G of 40 CFR Part 122); or
 - (ii) located in the counties with unincorporated urbanized populations of 100,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships or towns within such counties (these counties are listed in Appendices H and I of 40 CFR Part 122); or
 - (iii) owned or operated by a municipality other than those described in paragraph (i) or (ii) and that are designated by the Director as part of the medium municipal separate storm sewer system.
- M. "MEP" is an acronym for "Maximum Extent Practicable," the technology-based discharge standard for Municipal Separate Storm Sewer Systems established by CWA §402(p).
- N. "MS4" is an acronym for "municipal separate storm sewer system" and is used to refer to either a Large or Medium Municipal Separate Storm Sewer System (e.g. "the Nashville MS4").
- O. "Municipal Separate Storm Sewer" means a conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, and storm drains):
- (i) owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State Law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State Law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian Tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States;
 - (ii) designed or used for collecting or conveying storm water;
 - (iii) which is not a combined sewer; and

- (iv) which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.
- P. "Permittee" means each individual co-applicant for an NPDES permit who is only responsible for permit conditions relating to the discharge that they own or operate. (Also, See 40 CFR 122.2)
- Q. "Outfall" means a *point source* as defined in subpart Q. below at the point where a municipal separate storm sewer discharges to waters of the State of Tennessee and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances which connect segments of the same stream or other waters of the State and are used to convey waters of the State.
- R. "Point Source" means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.
- S. "Severe property damage" means substantial physical damage to property, damage to the treatment facility which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
- T. "Storm Sewer", unless otherwise indicated, refers to a municipal separate storm sewer.
- U. "Storm Water" means storm water runoff, snow melt runoff, surface runoff and drainage.
- V. "Storm Water Discharge Associated with Industrial Activity" is defined at 40 CFR 122.26(b)(14). (Also, See Appendix C of the Rationale Sheet for this Permit.)
- W. "Stormwater Management Manual," or SWMM, refers to a manual of three volumes prepared for the Metropolitan Government of Nashville and Davidson County, dated July, 1988.
- X. "Storm Water Management Program," or "SWMP," refers to a comprehensive program to manage the quality of storm water discharged from the municipal separate storm sewer system.
- Y. "Time-weighted composite" means a composite sample consisting of a mixture of equal volume aliquots collected at a constant time interval.
- Z. "Waters of the state" or simply "waters" is defined in the Tennessee Water Quality Control Act and means any and all water, public or private, on or beneath the surface of the ground, which are contained within, flow through or border upon Tennessee or any portion thereof except those bodies of water confined to and retained within the limits of private property in single ownership which do not combine or effect a junction with natural surface or underground waters.

Metro Nashville/Davidson County MS4
Rationale Sheet

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Rationale Sheet
 Metropolitan Nashville - Davidson County
 Municipal Separate Storm Sewer System (MS4)
 NPDES Permit No. TNS068047

I. Facility identification

This rationale sheet addresses the municipal separate storm sewer system (MS4) owned and/or operated by the Metropolitan Government of Nashville and Davidson County (Nashville). The system is described in the NPDES application submitted to the Division of Water Pollution Control in two parts dated November 18, 1991 and November 16, 1992.

The NPDES application was prepared by the Metro Department of Public Works:

Metro Department of Public Works
 Engineering Division
 720 South Fifth Street
 Nashville, Tennessee 37206

Director: Marlin Keel
 Storm Water: Tom Palko
 Bob Worthington

II. Application status

A. Nashville submitted a two part application according to EPA regulations promulgated November 16, 1990.

Part 1: Submitted November 18, 1991
 Part 2: Submitted November 16, 1992

B. The TDEC and Nashville held several discussions as the application was being prepared. Records of these meetings are in the permit file.

C. The Division determines that the application is complete for purposes of preparing the NPDES permit.

III. Description of the Nashville MS4

A. EPA definitions

The following definitions are excerpts from the EPA November 16, 1990 storm water application rule.

Municipal separate storm sewer means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

(i) Owned or operated by [a State, city or other public body (created by or pursuant to State law)] having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district, or similar entity...or a

designated and approved management agency under section 208 of the CWA that discharges to waters of the [State].

(ii) Designed or used for collecting or conveying storm water;

(iii) Which is not a combined sewer; and

..(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2

Large municipal separate storm sewer system means all municipal separate storm sewers that are either:

(i) Located in an incorporated place with a population of 250,000 or more as determined by the latest Decennial Census by the Bureau of Census (appendix F) ["Nashville/Davidson" is listed in appendix F] ; or

(ii) Located in the counties listed in appendix H, except municipal separate storm sewers that are located in the incorporated places , townships or towns within such counties; or

(iii) Owned or operated by a municipality other than those described in paragraph (b)(4)(i) or (ii) of this section and that are designated by the Director as part of the large or medium municipal separate storm sewer system due to the interrelationship between the discharges of the designated storm sewer and the discharges from the municipal separate storm sewers described under paragraph (b)(4)(i) or (ii) of this section. In making this determination, the Director may consider the following factors:

(A) Physical interconnections between the municipal separate storm sewers;

(B) The location of the discharges from the designated municipal separate storm sewer relative to discharges from municipal separate storm sewers described in paragraph (b)(4)(i) of this section;

(C) The quantity and nature of pollutants discharged to waters of the United States;

(D) The nature of the receiving waters; and

(E) Other relevant factors.

B. Nashville's system described

1. Metropolitan Nashville-Davidson County owns and/or maintains an extensive separate storm sewer system within the 533 square miles encompassed by its boundary. This system includes all conveyances or systems of conveyances in Davidson County except those located within the boundaries of several (seven) incorporated places in Davidson County.

Storm water runoff in the county drains eventually to the Cumberland River, which meanders through the center of the county flowing from east to west. An area of combined sewers ,(sanitary and storm) intercepts approximately 15 square miles of storm water in the central portion of the county (downtown Nashville).

2. On the matter of the seven incorporated places in the county, the Division designated, by letters dated April 23, 1992, the conveyances in the seven satellite cities as part of the Nashville MS4.

3. The drainage network throughout most of the county consists of natural open channel conveyance systems. Large storm sewer networks are almost nonexistent outside the combined sewer system. Thus, most of the points where storm water exits the Nashville MS4 and enters waters of the State are open drainage ways.

For instance, in preparation of the part 1 application, Metro was able to identify only 50 pipes that met the definition of a major outfall. When they also included open drainage ways, they were able to identify 1200 outfalls.

- C. Tennessee Department of Transportation (TDOT) roadways and associated storm drains

Storm sewers owned or operated by TDOT are publicly owned storm drains in Nashville and are thus a part of the Nashville MS4. Some of the TDOT sewers join waters of the State directly. Others join storm sewers owned by Metro Nashville and do not discharge directly into waters of the State.

- D. Map

The following map shows the boundary of Davidson County, the boundaries of six of the seven satellite cities and the Cumberland River. A small portion of Ridgeway is in north Davidson County.

IV. Description of receiving streams

- A. Introduction

Water that exits the storm sewer eventually enters waters of the State. Waters of the State are defined in the Tennessee Water Quality Control Act as follows:

"Waters" means any and all water, public or private, on or beneath the surface of the ground, which are contained within, flow through, or border upon Tennessee or any portion thereof except those bodies of water confined to and retained within the limits of private property in single ownership which do not combine or effect a junction with natural surface or underground waters.

Metro notes that for the purpose of the NPDES storm water permit application, receiving streams were identified as those water bodies that were significant enough in length, drainage area, or importance to aquatic life to have been given a name by local, state or federal agencies. Several resource documents were used to identify named streams in Davidson county. Table 2-2 in the Part 2 application lists the named streams.

The Division is sure that there are waters of the State that are unnamed. Metro should be aware of this and not exclude unnamed waters of the State from its storm water quality management program.

B. List of streams and designated uses

Nashville identified 26 major watersheds for the purpose of the NPDES permit application and ongoing storm water master planning:

1	Back Creek	14	Loves Branch
2	Browns Creek	15	Mansker Creek
3	Bull Run	16	Marrowbone Creek
4	Cooper	17	Mill Creek
5	Cub Creek	18	Overall Creek
6	Cumberland River	19	Pages Branch
7	Davidson Creek	20	Pond Creek
8	Dry Creek	21	Richland Creek
9	Gibson Creek	22	Sandy Creek
10	Gizzard Branch	23	Stones River
11	Harpeth River	24	Sulphur Creek
12	Indian Creek	25	Sycamore Creek
13	Island Creek	26	Whites Creek

The designated uses of these streams include: domestic water supply, industrial water supply, fish and aquatic life, livestock watering and wildlife, recreation and navigation.

C. Map

The following map shows Davidson county and how the city has identified 26 watersheds within the county.

Creek											
Hurricane Creek		10.3									
Marrowbone Lake		60.0 ³									
Mill Creek	24.6										
Richland Creek		10.5									
Stones River	6.7										

¹ PS Partially Supporting Designated Uses
NS Non Supporting Designated Uses

² PS Municipal Point Source
CS Combined Sewer Overflows
SW Urban Storm Water Runoff
S Spills
UI Upstream Impoundment
A Aquaculture
LD Land Development Practices
CH Channelization
IPC In-Place Contamination

³ Value reported is acres of lake surface.

V. Permit writer's approach to developing this permit

A. Introduction

The Water Quality Act of 1987, which set up the present NPDES permit requirements for discharges of urban runoff, requires that the NPDES permit issued to Metro Nashville/Davidson County:

- a. include a requirement to effectively prohibit non-stormwater discharges into the storm sewers; and
- b. require the permittees to reduce pollutants in discharges from the MS4 to the "Maximum Extent Practicable" (MEP).

This permit will impose Best Management Practices (BMP's), in the form of required source control measures and a comprehensive Storm Water Management Program (SWMP), as the mechanism to implement the statutory requirements.

While Section 402(p)(3)(B)(iii) of the CWA includes structural controls as a component of MEP, the State recognizes that a municipality may first implement pollution prevention measures and reserve more costly structural controls for higher-priority watersheds or where source controls are unfeasible or ineffective and where pilot studies have been done to prove the effectiveness of the structural control.

B. Necessary MS4 program elements

The EPA regulations of November 16, 1990 formally established application requirements for medium and large MS4's. In addition to requiring much background information and collection of mapping and storm water discharge data, the application regulations required the city to submit a proposed storm water quality management program. The minimum elements of such a plan were spelled out in the regulations. Likewise,

the NPDES permit issued to a medium or large MS4 should set forth requirements for each of these program elements.

Appendix A, taken from the November, 1992, document mentioned below, shows the part 1 and part 2 MS4 application requirements in short form. Note how the part 2 requirements elaborate on the part 1 requirements.

EPA guidance manuals elaborated on the application requirements: Guidance Manual for the Preparation of Part 1 of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems, (EPA-505/8-91-003A), April, 1991, and the Guidance Manual for the Preparation of Part 2 of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems, (EPA 833-B-92-002), November, 1992.

The minimum program elements enumerated in the regulations are the following. These are listed here for quick reference. In section VII. of this rationale sheet, there is a short description of each of these elements.

<u>REQUIRED PROGRAM ELEMENT</u>	<u>REGULATORY REFERENCES</u>
Operation and maintenance of structural controls	40 CFR 122.26(d)(2)(iv)(A)(1)
Control of discharges from areas of new development and significant redevelopment.	40 CFR 122.26(d)(2)(iv)(A)(2)
Operation and maintenance of public streets, roads, and highways	40 CFR 122.26(d)(2)(iv)(A)(3)
Ensuring flood control projects consider water quality impacts	40 CFR 122.26(d)(2)(iv)(A)(4)
Identification, monitoring, and control of discharges from municipal waste ... treatment, storage, or disposal facilities.	40 CFR 122.26(d)(2)(iv)(A)(5)
Control of pollutants related to application of pesticides, herbicides, and fertilizers.	40 CFR 122.26(d)(2)(iv)(A)(6)
Implementation of an inspection program to enforce ordinances which prohibit illicit connections and illegal dumping into the MS4.	40 CFR 122.26(d)(2)(iv)(B)(1)
Field screening the MS4 for illicit connections and illegal dumping	40 CFR 122.26(d)(2)(iv)(B)(2)
Implementation of standard investigative procedures to identify and terminate sources of illicit connections or discharges.	40 CFR 122.26(d)(2)(iv)(B)(3)
Prevention, containment, and response to spills that may discharge into the .. MS4.	40 CFR 122.26(d)(2)(iv)(B)(4)
Limit the infiltration of sanitary seepage into the MS4	40 CFR 122.26(d)(2)(iv)(B)(7)
Identification, monitoring, and control of discharges from municipal landfills; hazardous waste treatment, storage, disposal and recovery facilities; facilities that are subject to EPCRA Title III, Section 313; and any other industrial or commercial discharge the permittee determines are contributing a substantial pollutant loading to the MS4.	40 CFR 122.26(d)(2)(iv)(C)(1)
Control of pollutants in construction site runoff	40 CFR 122.26(d)(2)(iv)(D)(1)
Public education	40 CFR 122.26(d)(2)(iv)(A)(6) 40 CFR 122.26(d)(2)(iv)(B)(5) 40 CFR 122.26(d)(2)(iv)(B)(6)

VI. Rationale for permit conditions for elements of the storm water management plan

Discussed below are each of the necessary MS4 program elements along with Nashville's proposed program and the Division's rationale for selected permit conditions.

A detailed summary of the programs Nashville proposes is given in Appendix B along with the proposed schedule.

Structural Controls: The permittee must maintain according to schedule any storm water structural controls for which they are the owner or operator, in a manner so as to reduce the discharge of pollutants (including floatables).

Introduction --

The applicant identified 16 major storm water control facilities: eleven dry detention and five wet detention facilities. Only one, the Dry Creek detention facility, at Dry Creek and I-65, is owned or operated by Metro Nashville.

Proposed program --

For this program element, Metro proposes a program that includes the following:

- compiling in digital format a comprehensive inventory of the storm water drainage infrastructure
- establishing an inspection and maintenance program
- to continue existing solid waste related programs such as recycling, yard waste collection, and litter control
- modifying, if required, existing detention policy to set maintenance criteria for privately owned facilities and/or strengthen legal recourse

Several other tasks depend on first mapping the storm water infrastructure:

- prioritizing emergency maintenance
- scheduling routine maintenance
- identifying additional outfalls to be field screened
- identify capital improvement needs
- master planning

Metro addresses floatables incidentally, as a benefit of catch basin cleaning, street sweeping and retrofitting of dry detention ponds.

Proposed permit conditions --

The Division proposes to adopt Nashville's proposed program, with the following modified requirements:

- a. inspections of the Dry Creek detention basin once per quarter and removal of debris and solids as needed;

- b. clear, written procedures for determining when Metro and when a private entity is responsible for inspections and maintenance of storm water control structures (detention and retention basins) when the structure is owned by the private entity, along with clear responsibilities of each; and
- c. in the course of compiling the system inventory, to collect data necessary for prioritizing emergency maintenance, scheduling routine maintenance, etc.

Areas of New Development and Significant Redevelopment: The permittee must utilize a comprehensive master planning process to develop, implement, and enforce controls to minimize the discharge of pollutants from areas of new development and significant redevelopment. In particular, the planning process shall address post-construction runoff.

Introduction --

Urbanization generally results in increases both in the volume of storm water discharged to surface water and in the rate of discharge. These are caused when vegetation, which would otherwise slow and absorb runoff, is removed and replaced with pavement and structures. Furthermore, it is typical that an increase in impervious land surfaces leads to increased pollutant levels in storm water runoff. Such chemical and thermal changes in storm water runoff can adversely affect the quality of receiving waters.

Pollution from urbanization can be prevented, or limited, through planning prior to development. Prior to development, one can examine the full range of structural storm water controls and non-structural best management practices that might be implemented at a given location. Additionally, controls installed at the onset of land development are the most cost-effective approach to storm water quality management. Thus, to reduce long-term pollutant discharges, i.e., discharges after an area has been developed and populated, planning priorities and procedures must be in place before and during the process of development.

Proposed management program --

Metro states that this program element will be tied primarily to the Construction Site Runoff Program during the initial five year permit period. The program will require appropriate controls during the construction phase of development, and structural controls only where needed for storm water quantity control under MDPW existing detention policy. The detention policy requires that post-development peak discharge rates be no more than pre-development rates for two to ten year storms. Structural controls for storm water quality will not be required during the initial five-year period so that additional data on the seasonal characteristics of discharges in Metro Nashville can be obtained.

Nashville's proposed program includes the following:

- construction site management (plans review, etc.)
- commercial and residential storm water runoff monitoring

- pilot study of wet and dry detention ponds
- a pilot master plan of an area with high development
- upgraded ambient monitoring of local streams

The pilot study of wet and dry detention ponds will be done on ponds installed on a voluntary basis by developers. The pilot master plan will be done in years three and four, and its conclusions will be implemented in the second five year NPDES permit.

Proposed permit conditions --

Other than recommending to developers a set of preferred design standards for wet and extended dry detention structures, and developing a pilot master plan in year four of the permit, Nashville does not propose to establish planning procedures by which post-construction storm water runoff quality is addressed. The Division would like to see such planning procedures as the focus of this program element and will specify some significant additions and changes to what Nashville has proposed.

EPA's Part 2 Guidance Manual (11/92) states: "the applicant must describe how consideration of those activities that affect storm water quality are to be incorporated into the municipality's comprehensive or master plan and its approval process for construction projects."

Planning procedures could involve, for example, amending zoning ordinances; locating local and regional detention basins; modifying sanitary and/or storm sewer designs; mandates for minimizing impervious surfaces in new development; use of pervious paving material; source treatment, flow attenuation and infiltration devices; and restrictions on development in steeply sloped areas.

In addition, the Division believes the city should have a more aggressive master planning effort. In contrast to a comprehensive master plan, Nashville proposes to develop a plan only for one area and not until year four of the term of the permit. Further master planning would not be done until the second five-year NPDES permit.

The Division proposes the following permit conditions:

- a. identify how consideration of storm water quality issues will be incorporated into the municipality's land use planning process;
- b. establish design standards, and criteria for installation, for wet or extended dry detention ponds in areas of new development and significant redevelopment;
- c. require developers to install wet and extended dry detention ponds;
- d. perform monitoring of inflow and outflow of at least three newly installed wet ponds and/or extended dry detention ponds;
- e. define the master planning effort in more detail (see listed examples above);
- f. begin master planning effort in year two rather than year three;

- g. identify and prioritize all areas where significant levels of development are expected to occur and schedule master planning for these areas; and
- h. define "significant redevelopment" and establish criteria for installing water quality control systems in redevelopment.

The Division views commercial and residential and ambient monitoring primarily as management tools to quantify the impact of storm water discharges into surface waters and as a means of assessing the effectiveness of storm water controls. So we will incorporate this monitoring into its own part in the permit itself, not as a part of the "new development" program. Likewise, though some aspects of construction site management are planning procedures, we will leave this to the Construction Site Runoff program discussed later.

Roadways: Each permittee must operate and maintain public streets, roads, and highways under its jurisdiction in a manner so as to minimize discharge of pollutants.

Introduction -

Nashville reports that a large part of the day to day management of roadways consists of catch basin cleaning, street sweeping, and ice and snow removal. Two other programs related to street maintenance have impact on storm water quality: applying herbicides for weed control, and an emergency management plan that specifies spill response procedures.

Proposed management program -

Nashville proposes the following:

- to increase street sweeping
- to reduce impacts of deicing
- to review, analyze and upgrade the spill response program with a view toward water quality impacts
- to review road design and construction criteria

Proposed permit conditions -

The Division proposes to adopt Nashville's proposed program with the following additions:

- a. scheduled routine and preventive maintenance of catch basins (cf. the infrastructure inventory)
- b. to enumerate street maintenance responsibilities among Metro, TDOT, satellite cities and any other agencies; and
- c. the review, analysis and upgrade of the spill response program will be included in the Illicit Discharges and Improper Disposal item of the permit itself;
- d. to require that Metro Nashville evaluate the use of pervious paving material for Department of Public Works projects.

Flood Control Projects: Each permittee must ensure any flood management project it undertakes assesses impacts on water quality of receiving waters. Each permittee must also evaluate the feasibility of retrofitting existing structural flood control devices to provide additional pollutant removal from storm water.

Introduction -

Metro reports that it does not normally consider impacts to water quality in its flood control projects. Municipalities have had only to comply with wetlands regulations and State-administered programs, such as Tennessee's Aquatic Resource Alteration Permit (ARAP) program. In contrast, federal projects have had to consider impacts to the environment.

Public Works notes that only sixteen of the detention facilities in Davidson County are large enough to be considered feasible for retrofitting. The Dry Creek detention facility, a Corps of Engineers project, already incorporates water quality features. Five of the remaining sites are wet ponds, which it is assumed provide some minor water quality control. There are no plans to modify these. The other ten, dry ponds, might be retrofitted for water quality features.

Proposed management program -

Nashville proposes the following:

- evaluate the ten dry ponds for possible retrofitting
- determine whether new developments need structural water quality controls, based on results of monitoring at voluntarily installed controls
- develop regulations and amend design criteria for on site and regional water quality controls at flood control facilities

Proposed permit conditions -

The Division will incorporate the program as proposed.

Identification, monitoring, and control of discharges from operating or closed municipal landfills or other waste treatment, storage, or disposal facilities: Each permittee must implement a program to reduce pollutants in storm water discharges from municipally-operated solid waste transfer stations, maintenance and storage yards for waste transportation fleets, POTWs and sludge application sites not covered by NPDES storm water permits. The initial phase of the program shall contain procedures to evaluate, inspect, and monitor these sites. Based upon the evaluations, inspections, and monitoring performed, priorities and procedures for implementing control measures for pollutant reduction at these sites shall be developed. Monitoring methods used during the initial investigative period may be relaxed from standard protocol and may be based on experience gained during actual field activities. The goal of the investigative portion is actively to identify areas within these sites with poorer quality discharges during storm events, so that those areas will be given priority when implementing control measures.

Discussion -

Metro is incorporating these program requirements into the industrial and high risk runoff program which is discussed below.

Pesticide, Herbicide, and Fertilizer Application: Each permittee must implement controls to reduce the discharge of pollutants related to application of pesticides, herbicides, and fertilizers applied by the permittee's employees or contractors to public right of ways, parks, and other municipal facilities. The public education element of the SWMP must include a component aimed at private use of fertilizers, herbicides and pesticides.

Introduction -

The goal of Nashville's pesticide, herbicide and fertilizer application program is to provide citizens of Metro Nashville with information and guidance on the proper use and disposal of chemicals. The proposed program is intended to complement the State's program of commercial applicator registration.

Proposed management program -

Nashville proposes the following:

- setting up household hazardous waste turn-in day
- public education, such as mass mailings through utility bill inserts, handouts, telephone line

Proposed permit conditions -

The Division will incorporate the program as proposed.

Illicit Discharges and Improper Disposal: Each permittee must implement an ongoing program to detect and remove illicit discharges and improper disposal into the storm sewer. Each permittee must effectively prohibit non-storm water discharges to the MS4, other than those authorized under a separate NPDES permit.

This program should include the elements listed below:

- i. ordinances, orders and enforcement mechanisms which prohibit illicit discharges and improper disposal to the MS4;
- ii. policy and procedures concerning discharges of various non-storm waters such as individual car washing runoff, fire fighting waters, fire hydrant flushing, landscape irrigation etc.;
- iii. a dry weather field screening program, including priorities, to find possible illicit discharges, then to locate and eliminate them;
- iv. a detailed summary of responsibilities, among the various departments within Metro government, for locating illicit discharges;
- v. a program to prevent, contain and respond to spills that may discharge into the MS4;
- vi. a program to prevent (or require the operator of the sanitary sewer to eliminate) unpermitted overflows from the sanitary sewer to the MS4, and to limit leakage from sanitary sewers to the MS4; and
- vii. public education on both illicit discharges and on proper disposal of used oil and toxic chemicals.

The dry weather screening is a continuation of efforts started under Part 1 of the permit application to locate and eliminate illicit connections to the MS4.

Introduction -

Metro does not presently have a program to search out illicit connections. They are also hampered in conducting such a program in that the storm drain system is not thoroughly mapped.

In its application part 2, on the matter of the several non-storm water discharges listed in the EPA regulations, Metro proposes to allow these discharges without restriction.

Proposed management program -

Nashville proposes a program with the following elements:

- upgrade and/or strengthen ordinances to prohibit non-storm water discharges into the MS4
- a strategy for locating illicit connections and dumping, including a revaluation of contaminated part 1 field screen sites, responding to complaints and an ongoing field screening program
- a two-person field screen team, associated equipment, and written procedures for field screening
- maintain electronic database of results of investigations
- complete and implement the *Metropolitan Nashville and Davidson County Emergency Management Plan*
- research and describe known spills over the previous five years and determine if spills represent a general threat to receiving stream water quality
- setting up household hazardous waste turn-in day (also noted above)

- program of public participation in the reporting of spills and other water quality problems, or potential problems
- educate the public in disposal of oil and toxic materials
- continue to practice good engineering practices in the design and construction, or modification, of sanitary sewer lines near storm sewers or open channel conveyances

Proposed permit conditions -

The Division proposes to incorporate Nashville's program as proposed, with the following additions and changes:

- a. requirement to research historic use of ordinances, guidance or other controls which limited the use of POTW's for disposal of spent waters; incorporate findings into the strategy noted above;
- b. requirement to consider in more detail the various non-storm waters;
- c. regarding sanitary sewer leakage, to ensure that field teams screen for sanitary wastes and to ensure Metro Water and Sewer reports to Public Works the location of probable leaks from sanitary to storm sewer; and
- d. ensuring that the public is taught proper disposal of oil and toxic chemicals.

Nashville should be familiar with the EPA publication, Investigation of Inappropriate Pollutant Entries into the Storm Drainage System: a User's Guide, EPA/600/R-92/238 (January, 1993).

Industrial & High Risk Runoff: Each permittee must implement a program to identify, monitor, and control pollutants in storm water discharges to the MS4 from municipal landfills; hazardous waste treatment, storage, disposal and recovery facilities and facilities that are subject to EPCRA Title III, Section 313; and any other industrial or commercial discharge the permittee determines is contributing a substantial pollutant loading to the MS4.

The program must include:

- i. priorities and procedures for inspections;
- ii. establishing and implementing control measures for such discharges; and
- iii. a monitoring program for facilities identified under this section, including the collection of quantitative data on the discharges from those facilities.

The monitoring program shall include the collection of quantitative data on the following constituents:

- any pollutants limited in an existing NPDES permit for an identified facility;
- any pollutants limited in effluent limitations guidelines subcategories
- oil and grease;
- chemical oxygen demand (COD);

- pH;
- biochemical oxygen demand, five-day (BOD₅);
- total suspended solids (TSS);
- total phosphorous;
- total Kjeldahl nitrogen (TKN);
- nitrate plus nitrite nitrogen; and
- any information on discharges required under 40 CFR 122.21(g)(7)(iii) and (iv).

[40 CFR 122.21(g)(7)(iii) and (iv) require that permittees must indicate whether they know or have reason to believe that any of the pollutants in Tables II, III, or IV of Appendix D (toxic pollutants, total phenols, and certain conventional and nonconventional pollutants) are being discharged from the outfalls at these sites.]

The permittees must provide a listing in each Annual Report which contains any additionally identified industrial facilities which discharge storm water into the MS4. The industrial storm water discharges that must be included in this inventory fall into eleven classes of industrial activities as defined in the November 1990 regulations under 40 CFR 122.26(b)(14). The definition of "storm water discharge associated with industrial activity," including the eleven classes of industries, is given in Appendix C.

Introduction -

Metro presently has no storm water specific inspection program for industrial facilities.

Proposed management program -

Nashville proposes a program that consists of the following:

- scheduled inspections, plus inspections in response to complaints or instream pollution
- to assist industries in developing and implementing storm water pollution controls
- monitoring runoff from 4-8 sites per year with automatic sampler (Form 2F parameters)
- integrated database of facilities, inspection results, and monitoring information

Proposed permit conditions -

The Division proposes adopting Nashville's program as proposed, with the following additions:

- i. in addition to the facilities and activities Metro proposes to include in its industrial database, include holders of individual NPDES permits;
- ii. as part of the assistance to industries, carry out a project on the restaurant industry, describing the industry, its wastes, its waste disposal practices, storm water control practices, plus actions Metro can implement to remedy problems; and
- iii. actively investigate closed and open municipal landfills and other treatment, storage or disposal facilities for municipal waste, such as transfer stations, maintenance and storage yards for waste transportation fleets, POTWs

and sludge application sites; based on the evaluations, set up priorities and procedures for implementing control measures for pollutant reduction at these sites.

Construction Site Runoff: Each permittee must implement a program to reduce the discharge of pollutants from construction sites, including requirements for the use and maintenance of structural and nonstructural best management practices during construction; procedures for site planning which include consideration of short and long term water quality impacts and minimizing these impacts; prioritized inspections of construction sites, and enforcement of control measures; education and training measures for construction site operators; and notification to building permit applicants of their responsibilities under the NPDES permitting program for construction site runoff.

Introduction -

Metro has a well developed construction plans review process, including review of grading, drainage and erosion control plans. Certain types of construction are exempted, and sites less than 10,000 sq.ft. are exempted. Metro believes it has an adequate written process for inspections and enforcement, but that in practice, it does not carry these out as written, mainly because of too few inspectors. Also, enforcement is hampered because of small fines and the long time for cases to reach the courts.

Proposed management program -

Metro's proposed program includes:

- upgrading the SWMM
- hire and train a plans review supervisor; conduct annual training for plans reviewers
- hire and train three additional construction site inspectors; add equipment and conduct annual inspector training
- improving inspectors' checklist
- increasing penalties in the ordinances
- seek higher priority for construction site violations in environmental court
- evaluate usefulness of conducting an annual workshop for contractors

Proposed permit conditions -

The Division proposes adopting Nashville's program as proposed, with the following notes and additions.

The Division does not believe that Metro has given a procedure for site planning that takes into account possible impacts to water quality. Such a procedure is needed so that the municipality and developer may address storm water discharges from the construction activity early in the design process.

The Division notes at least two ways Metro is looking at site planning. One, Metro plans to upgrade its SWMM to meet or exceed the *TDEC's Erosion and Sediment Control Handbook*. This handbook includes a few construction management techniques, such as holding clearing and grubbing to a minimum, sequencing

construction operations, etc.. These are elements of site planning. Two, the Division recognizes that Metro will be requiring the use of water quality controls as described above in the New Development and Significant Redevelopment" program.

Nevertheless, we believe a more detailed procedure of site planning that takes into account impacts on water quality should be described and implemented. For example, a mechanism to survey streams nearby a proposed development prior to development, for the purpose of baseline information and to offer direction to development to minimize impact to streams; giving consideration to how pesticides and herbicides will be used after construction and can their effect be minimized by site design; a review and approval process for mini-storm water quality management programs.

Proposed permit conditions --

The Division proposes to adopt Metro's program, with the following additions:

- a. description of a procedure for site planning whereby developers and Metro must consider impacts on water quality of nearby streams due to construction and post construction activities on the site

Public Education: Each permittee must implement a public education program including a program to promote, publicize, and facilitate public reporting of the presence of illicit discharges of non-storm water or improper disposal of materials such as industrial and commercial wastes, household hazardous wastes, leaf litter, grass clippings, and animal wastes into the MS4; a program to promote, publicize, and facilitate the proper management and disposal of used oil and household hazardous wastes; a program to promote, publicize, and facilitate the proper use, application, and disposal of pesticides, herbicides, and fertilizers by the public and commercial and private applicators and distributors; and where applicable and feasible, the permittee should publicize those best management practices (including but not limited to the use of reformulated or redesigned products, substitution of less toxic materials, and improvements in housekeeping) used by the permittee that facilitates better use, application, and/or disposal of materials identified above. The State believes that educating the public on the impacts of their everyday activities is a crucial component of preventing storm water pollution.

Introduction --

Metro addresses the task of public education in two or three of the programs described above.

Proposed program --

In short, Metro proposes to carry out the items listed above. Also, Metro plans to build a household hazardous waste turn-in site and open it quarterly.

Proposed permit conditions --

The Division proposes to adopt Metro's program as proposed. The permit will also require Metro to publicize the BMP's it uses itself.

VII. Rationale for sampling and monitoring requirements

A. Introduction

The EPA storm water application regulations set forth requirements that MS4 cities will address at least three types of sampling during the term of their permits:

- representative data collection (refers to sampling storm water discharges at outfalls of the MS4 system; may be designed to describe an area of homogeneous land use);
- field screening for illicit connections and improper disposal; and
- monitoring runoff from industrial sites.

See Appendix D for quotations from the EPA regulations on the subject of sampling.

A city might perform other types of monitoring as well, such as the following:

- instream sampling, chemical and biological;
- stream bioassessments; and
- BMP or other storm water treatment system influent and effluent monitoring.

B. Nashville's proposed program

In its part 2 application, Section 3.4.1, pages 23-27, Metro discusses and makes proposals on several ongoing monitoring programs. Field screening, industrial sampling and BMP monitoring have been addressed in section VII. above. Details of wet weather outfall sampling and ambient monitoring are shown below.

<u>Program and description</u>	<u>Goals</u>	<u>Notes</u>
Seasonal sampling; continued discharge characterization	A statistically significant sampling database; seasonal and land-use specific data; and determination of whether or not seasonal variations in runoff quality will impact effectiveness of structural storm water controls	Sampling procedures similar to part 2 application; parameters to be tested are shown in Table 3-8 of the part 2 application in Section 3.4.1 on page 24.
Ambient monitoring	Identify acute in-stream water quality problems during wet weather sampling; identify chronic in-stream water quality problems during dry weather sampling; identify overall chemical water quality of the streams; assess ability of streams to meet designated uses; follow trends in water quality	Establish ambient pgm. either as enhancement of existing program or as pilot program of Public Works. Monitor both wet and dry weather flows. Sample same parameters as those for seasonal sampling of outfalls.

and correlate with Metro's mgt.
program

Metro will develop a wet weather monitoring program and ambient monitoring program late in the first year of the permit and begin sampling in the middle of the second year.

C. Proposed permit conditions for sampling and monitoring

Industrial monitoring, field screening and BMP monitoring have been addressed above in section VII.

The Division proposes to adopt Metro's program as proposed, with the addition of some instream biological monitoring.

The Division proposes that Metro Nashville conduct periodic biological assessments of several streams [Browns Creek and Richland Creek, etc.] as a way to monitor improvements in water quality.

VIII. Assessment of controls

A. Need for assessments

We believe an MS4 city needs to assess the effectiveness of its storm water quality management program for several reasons; assessments serve:

- as a step in determining whether the most cost effective best management practices are included in the storm water management program;
- as a means to ensure the operator of the MS4 is accountable to the public and other users of the MS4;
- to assist in designing on-going monitoring, inspection and surveillance programs that help refine estimates of program effectiveness;
- as a baseline and ongoing measuring stick of the progress of the program; and
- in developing a strategy to evaluate progress toward achieving water quality goals.

B. Definition of assessments

EPA's Part 2 Guidance Manual states: "For some components of a proposed management program, such as structural controls (e.g., vegetative streambank stabilization, sediment pond or basin, etc.), the effect on pollution in storm water runoff is observable, and pollutant removal efficiencies can be estimated directly. For other components, pollutant reductions may be difficult to quantify. Applicants may need to use indirect estimates. For example, a program component may address source controls such as changing the behavior of citizens in the community, or improving the municipal control of industrial or commercial runoff." So there are direct measurements of program effectiveness and indirect measurements.

Examples of some direct measurements:

- expected pollutant load reductions (part 2 application)
- removal efficiencies of BMP's
- reductions in the volume of storm water discharged
- reductions in event mean concentrations

Examples of indirect measurements:

- gallons of used oil recycled
- amount of household hazardous waste collected
- number of education brochures distributed
- number of reports of illicit discharges or illegal dumping
- number of construction and erosion and sediment control plans submitted and approved

C. EPA storm water application regulations

The EPA storm water rules address assessments in a couple of places.

First, the application rule made "Assessment of controls" an element of the part 2 application, requiring that the applicant make an initial, or baseline, assessment of what quantitative impact its storm water management plan will have on the quantity of pollutants discharged from the MS4.

Assessment of controls. Estimated reductions in loadings of pollutants from discharges of municipal storm sewer constituents from municipal storm sewer systems expected as the result of the municipal storm water quality management program. The assessment shall identify known impacts of storm water controls on ground water quality. 40 CFR 122.26(d)(2)(v).

Second, NPDES rules at 40 CFR 122.42 specify that the operator of an MS4 submit an annual report that includes, among other items, "revisions, if necessary, to the assessment of controls...reported in the permit application."

D. Metro's proposal for assessments of controls

Metro will be developing and implementing storm water control programs, studying existing programs for how to improve them, collecting technical data from pilot projects, water quality data, etc. Metro discussed how the different programs would be assessed, as summarized below.

<u>Type of storm water management program component</u>	<u>Examples</u>	<u>Result of assessment</u>
Study of existing Metro programs	Street sweeping; deicing; construction plans re- view; construction site inspections & enforcement	Determination of whether existing program is working well; what changes should be made; timetable and budget for changes
Pilot study	Structural BMP study	Quantitative data; report and technical conclusions; whether or not to adopt the studied system; schedule and budgeting
Quantitative investigations	Storm water monitoring, seasonal and industrial, for example	Quantitative data; conclusions; trend analysis
Public education	Used oil and toxics disposal; use and disposal of pesticides; spill reporting	Numbers of people contacted or participating; volume of materials turned in or picked up; number of reports of spills and pollution; trend analysis
New program implementation	Illicit connections; industrial inspections; construction inspections	Manpower; number of investigations and amount of useful information; record of follow-up actions; trend analysis of ambient monitoring data
Master planning	Master planning	Development of planning procedures; technical information on building water quality controls into flood control facilities; cost benefit study of such controls

Metro's part 2 application did not present estimated reductions in loading of pollutants to the MS4. This makes it somewhat more difficult to gauge or judge the relative merit of each of the program elements. For instance, do we expect more reduction in pollutant loading because of street sweeping or because of finding and eliminating illicit connections?

E. Division's proposed permit conditions

One, the Division will incorporate the "Assessment of controls" requirement of the Part 2 application, which requires estimated reductions in loadings of pollutants from the MS4 as a result of the storm water management program, as a part of the first Annual Report. Subsequent Annual Reports must revise this assessment as necessary.

The Division proposes that Nashville set up the system by which these estimates are made so that one can report loadings and reductions by SWMP program element and by watershed or by outfall. For example, one of the program elements will be installation of wet or dry detention basins. The city should be able to estimate reductions in loadings as a result of any such basins installed and to do so by watershed or outfall.

We believe that as information on the SWMP programs and their effects is collected, not only in Nashville, but nationwide, that more and more reliable estimates can be made. Already having a system in place to accept these data will save time and resources in the future. For example, a worksheet and lookup table can be prepared with program information, compliance rates, land uses, etc. that can be correlated with monitoring and stream data and pollutant load estimation equations; such a table could include all known MS4 outfalls, which could be manipulated and reported by watershed, by industry, by land use, etc..

Two, in a more general sense, the permit will require that Metro discuss each storm water management program element, including its objective, progress report, strengths and weaknesses, and an "assessment of controls," as the term is described in subparts A.-D. above.

IX. More particular issues of importance to the Nashville MS4

A. TDOT

Roads with drainage systems, including TDOT roads, are a part of the Nashville MS4. Metro Nashville recognized this and requested of the Division, by letter dated September 27, 1991, that TDOT be required to obtain an NPDES permit for discharges from its system. The Division met with TDOT on this matter in September, 1992.

The Division proposes to issue a separate NPDES permit to TDOT for discharges of runoff directly into waters of the State or indirectly through the Nashville MS4.

B. Outfall monitoring

In fulfilling the characterization data requirements (chemical sampling of storm water) of the part 2 application, Metro sampled

at instream locations. These locations were selected according to agreement among Nashville, USGS and WPC.

The Division proposes that Metro perform its wet weather seasonal storm water sampling specifically at outfalls. Sampling at outfalls is also expected at four to eight industrial sites per year.

C. Funding

The Department of Public Works has investigated different methods of funding its storm water quality management program. In October, 1993, the Department put before the Metro Council a measure for a storm water utility fee. This was rejected at that time.

Metro will be funding its program via the annual operating budget of the Department of Public Works. The annual budgets will propose that these expenditures be funded by ad valorem property taxes on property in the General Services District (county-wide).

D. Industrial sampling protocol

Metro has adequately addressed industrial sampling in its proposed program. Details which are not yet determined the Division will require Metro to submit for our brief review prior to its implementation.

E. Food establishments

The Division has received water quality complaints on disposal practices of food establishments. The Division knows that disposal of grease and food waste is being done in ways that allow contamination of storm water runoff.

The Division proposes that Metro examine the restaurant business for its contribution to pollution in storm water, to make recommendations or mandates on how these facilities should prevent storm water pollution, to publicize these recommendations, and to perform follow-up activities. The purposes of the requirement to examine the industry are to give Metro knowledge and expertise in current disposal practices, and what changes in practices are needed, at these facilities and to give Metro experience in surveying an industry. This, we believe, will be a valuable skill in stopping storm water pollution at other industries.

F. Goodlettsville and other Davidson County cities

The Division notified the following seven incorporated places in Davidson County of the storm water permitting program and of permit application requirements. As of the date of this rationale sheet, only two cities have responded to the Division's request for information. The City of Forest Hills has submitted part 1 of a two part application. The City of Ridgetop has contacted the Division for assistance in completing the application.

Belle Meade	Lakewood
Berry Hill	Oak Hill
Forest Hills	Ridgetop
Goodlettsville	

- G. Inter-Metro agency agreements; i.e., Water and Sewer, spill response, land use planning

The Division believes that several departments within Metro government, other than the Department of Public Works, may have a positive impact on the quality of the urban runoff; for instance, Water and Sewer, Solid Waste, the Planning Commission.

The Division proposes a requirement in the permit that Metro tabulate and provide at least a brief explanation to each department of the part it may play in managing urban runoff.

- H. Storm sewer mapping and GIS

Metro has stated that GIS mapping is a fundamental component of its storm water management program. The permit will be as specific as possible in seeing that this mapping done well and soon.

I. Targeted geographical areas or outfalls

Metro proposes to focus its efforts first on watersheds that do not meet water quality standards. The Division agrees with this strategy.

J. Habitat improvement

Storm water discharges degrade habitat (e.g. channel and bank erosion) and cause tremendous siltation, neither of which are detected by water chemistry sampling.

The Division proposes that Metro report on the feasibility of a program of improving habitats in Davidson county streams.

X. Permit conditions enumerated

See permit itself for details.

XI. Permit issuance and public notice procedures

The Division will publish notice of its intent to issue an NPDES storm water discharge permit to Metropolitan Nashville and Davidson County and for at least 30 days thereafter will receive comments on the draft permit, including the proposed storm water management program. Any interested person may request copies of the Rationale Sheet and draft permit and submit written comments on the draft permit.

For additional information, contact:

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